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SUPPLEMENTARY EVALUATION OF SCOTT  
AVIATION CORPORATION'S "CONSTANT FLOW  
SHALLOW WATER DIVING MASK" TO  
DETERMINE ITS COMPATIBILITY WITH THE  
U.S. NAVY STANDARD LIGHTWEIGHT DIVING  
DRESS

G. M. Janney

Navy Experimental Diving Unit  
Washington, D.C.

6 July 1959

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7. ABSTRACT

A previously evaluated shallow water divers' mask was evaluated to determine whether it is suitable for use with the standard lightweight divers' dress. It was found to be acceptable, although inferior to the standard shallow water mask in that respect.

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EVALUATION REPORT 26-59

SUPPLEMENTARY EVALUATION OF SCOTT AVIATION  
CORPORATION'S "CONSTANT FLOW SHALLOW WATER  
DIVING MASK" TO DETERMINE ITS COMPATABILITY  
WITH THE U.S. NAVY STANDARD LIGHTWEIGHT  
DIVING DRESS.

PROJECT NS185-005 SUBTASK 2 TEST 12

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## SUMMARY

### PROBLEM

Is the Scott Aviation Corporations Shallow Water divers mask suitable for use with the standard lightweight divers' dress?

### FINDINGS

The Scott mask is acceptable for use with the lightweight divers' dress. The standard mask is more compatible with the standard dress, however.

### RECOMMENDATIONS

Field tests are recommended. Mold changes of the Scott mask are also recommended to provide a better seal.

## ADMINISTRATIVE INFORMATION

- Ref: (a) EDU Evaluation Report 17-57; "Subjective Evaluation of Scott Corporations Constant Flow Shallow Water Diving Unit"; 15 February 1957.
- (b) EDU Evaluation Report 14-59; "A Comparative Evaluation of the Standard U.S. Navy Shallow Water Divers Mask, and the Scott Aviation Corporations Constant Flow Shallow Water Diving Mask"; 24 March 1959.
- (c) Telcon with M. J. Foran (BuShips, Code 638) of 15 June 1959.

The Scott Aviation Corporations Constant Flow Shallow Water Diving Mask was first evaluated at the Experimental Diving Unit in 1957. Reference (a) is the report of that evaluation. The mask was found to be unsatisfactory.

The mask was subsequently modified by the manufacturer and a second evaluation was conducted. Reference (b) is the report of the second evaluation. The modified mask was found to be satisfactory for Navy use. No dives were made using the Scott mask with the Standard U. S. Navy Shallow water divers dress, however. By reference (c), the Bureau of Ships requested that such tests be conducted to determine whether this mask is compatible with the standard shallow water divers dress.

The following is a breakdown of manpower expended for this project:

<u>DESCRIPTION</u>	<u>MANHOURS</u>
Tests	15
Report preparation	2
Clerical	<u>4</u>
TOTAL	21

Charges incurred were lodged against allotment 16102/59.

This is the third report issued under this test number and is issued in the Evaluation Report series of the Experimental Diving Unit, with distribution only to the Bureau of Ships. Further distribution will be made only as directed by that bureau.

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## 1. INTRODUCTION

### 1.1 Background

1.1.1 The Scott Constant Flow Shallow Water Diving Mask manufactured by the Scott Aviation Corporation of Lancaster, N. Y. was previously evaluated and found to be satisfactory for use in the U. S. Navy. EDU Evaluation Report 14-59, 24 March 1959, is the report of the evaluation.

1.1.2 The tests described in EDU Evaluation Report 14-59 did not include any dives made with the U. S. Navy Standard shallow water divers' dress.

### 1.2 Objective and Scope

1.2.1 The objective of this evaluation is to determine whether the Scott Constant Flow Shallow Water Diving Mask is suitable for use with the standard shallow water divers' dress.

## 2. DESCRIPTION

### 2.1 General

2.1.1 The mask is a molded rubber with a round glass face piece. An air control valve is mounted on the right side of the mask and an exhaust valve is mounted on the left side.

2.1.2 A more complete description including photographs is contained in EDU Evaluation Report 14-59.

## 3. PROCEDURE

### 3.1 Subjective Test Dives

3.1.1 Five divers, experienced in the use of the U. S. Navy standard shallow water divers' mask and divers' dress, were used to evaluate the Scott mask. Each diver donned the standard shallow water divers' dress and the Scott mask.

3.1.2 The diver then entered the water in the EDU pressure tank and observed the fit and sealing characteristics of the mask and suit. The mask was deliberately flooded and cleared of water to determine the ease of clearing. This was done both at surface pressure and at a pressure equivalent to 150 feet of salt water.

## 4. RESULTS & DISCUSSION

### 4.1 Subjective Comments

4.1.1 The following are summaries of the comments of the divers who evaluated the Scott Mask with the standard shallow water divers' dress:

C.W.S.        The comfort and seal of the Scott mask is equal to that of the standard mask. However, the Scott is harder to clear than the standard mask and the control valve is too heavy. It is a good substitute.



R.C.C. The Scott mask made a good seal both at surface and under pressure. The Scott is more comfortable than the standard mask.

The standard mask is easier to clear than the Scott. Also, the Scott Mask has a lot of flexibility, causing the mask to leak when moving quickly.

J.M.D. I had to use an excess amount of air to keep the mask from flooding. Air continually filled the suit because of the poor seal around the face piece of the suit.

The standard mask is more comfortable, easier to adjust and easier to clear. I would much prefer the standard mask.

J.E.T. I had no trouble with leaks using the Scott mask after tightening the head straps. The Scott mask clears easily through the exhaust valve. I prefer the Scott mask to the standard.

My chin was irritated by the Scott mask. I suggest changing the fit of the mask and lowering the exhaust valve two inches.

A.L.Z. The Scott mask did not make a good seal, resulting in too much leakage into the mask. The Scott mask is difficult to clear. I would prefer the standard mask to the Scott mask for all around use.

4.1.2 The result obtained by the five divers who used the Scott mask with the lightweight divers dress are not in complete agreement. This is to be expected since the results depend on head size and shape, techniques of using the mask and individual preferences. However, the results do indicate that both the sealing characteristics and the clearing ease of the standard mask are superior to the same characteristics in the Scott mask. These results are in agreement with the findings of EDU Evaluation Report 17-57.

4.1.3 While in most cases the standard mask was preferred for use with the standard lightweight divers dress, the Scott mask was used successfully. Appreciable difficulty with the Scott mask was experienced only by one of the divers (inflation of the dress due to a poor seal at the face mask).

## 5. CONCLUSIONS

### 5.1 Conclusions

5.1.1 The standard shallow water divers' mask is superior to the Scott mask when used with the standard lightweight divers' dress. However, the Scott shallow water divers' mask is acceptable for use with the standard lightweight divers' dress.

### 5.2 Recommendations

5.2.1 It is recommended that the Scott mask be given an evaluation by field activities.

5.2.2 It is recommended that the shape of the Scott mask be modified to provide a better seal with the standard lightweight divers' dress.